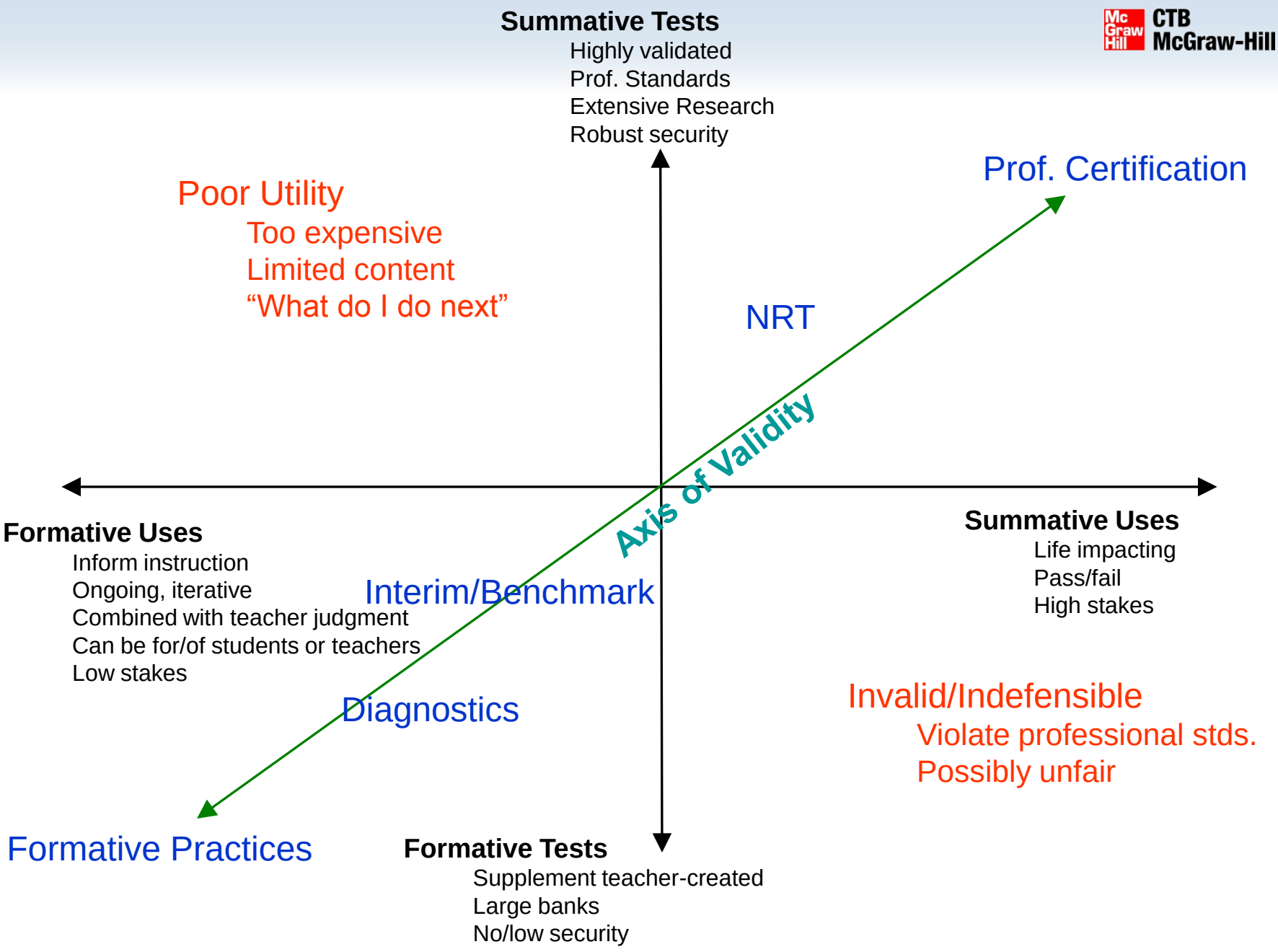
Alaska Department of Education and Early Development

TerraNova™, Third Edition Data Workshop

Shannon Puente, Senior Product Manager

Agenda

1. Axis of Validity
2. What does a Norm Referenced test offer?
3. What data do we get from *TerraNova 3*?
4. How are Data Related?
5. What does Average Growth Look Like?
6. What Makes Mastery?
7. NRT vs. Formative – Axis of Validity


Summative Tests
Highly validated
Prof. Standards
Extensive Research
Robust security
Poor Utility
Too expensive
Limited content
"What do I do next"
Prof. Certification
NRT
Axis of Validity
Formative Uses
Inform instruction
Ongoing, iterative
Combined with teacher judgment
Can be for/of students or teachers
Low stakes
Interim/Benchmark
Summative Uses
Life impacting
Pass/fail
High stakes
Diagnostics
Invalid/Indefensible
Violate professional stds.
Possibly unfair
Formative Practices
Formative Tests
Supplement teacher-created
Large banks
No/low security

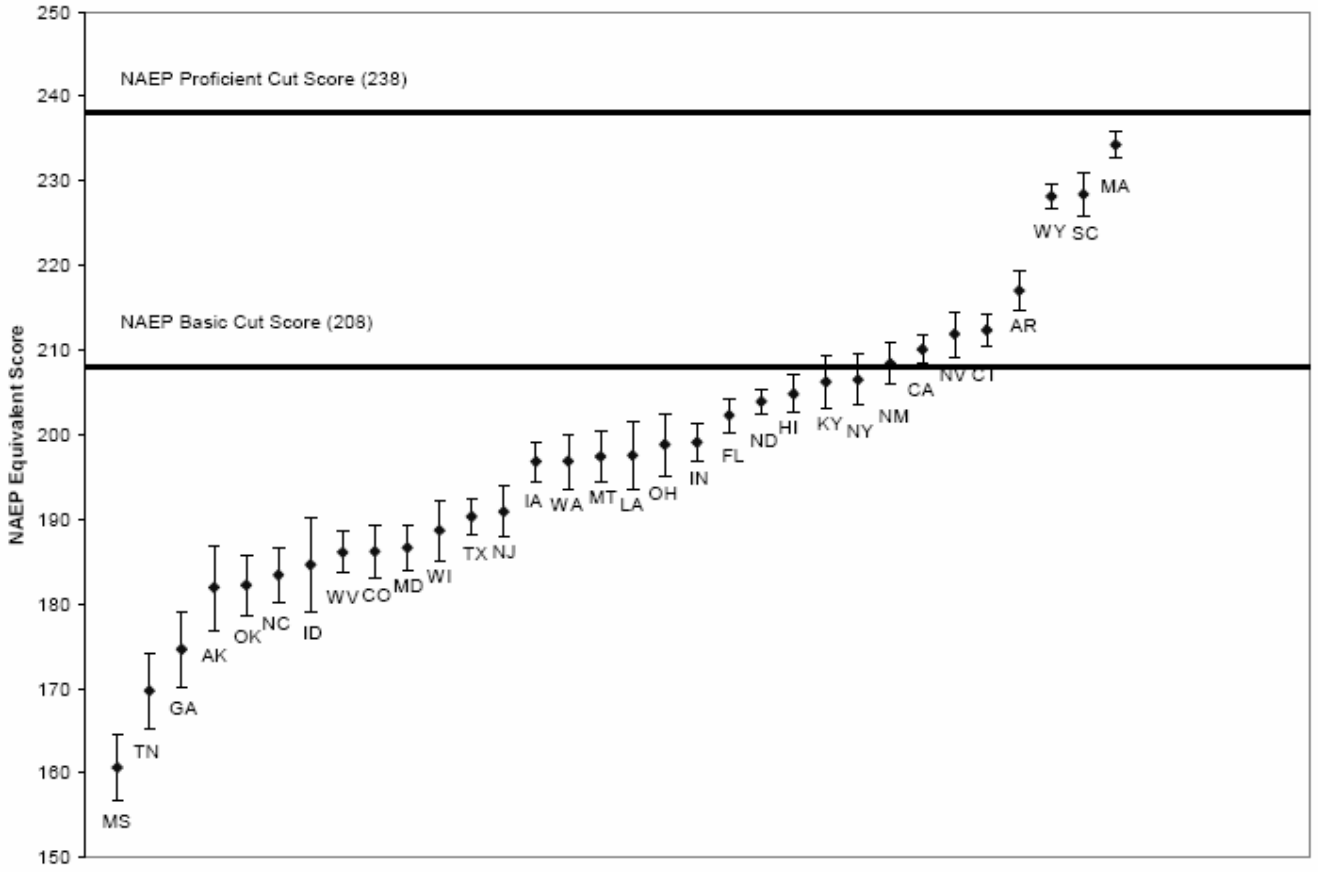
What does an NRT Offer?

- Reasons for using NRTs
  - Assess student achievement
  - Measure year-to-year growth
  - Monitor progress
  - Instructional planning using diagnostic data
  - Determine profile of overall strengths and weaknesses (for student and groups)

- NCLB test tells parents how students are doing in one state – a norm referenced test can tell parents how well your students can compete nationally.
  - Know how your schools and districts “stack up nationally”
  - Know how your students are performing on Alaska state standards

NAEP – Another National Comparison

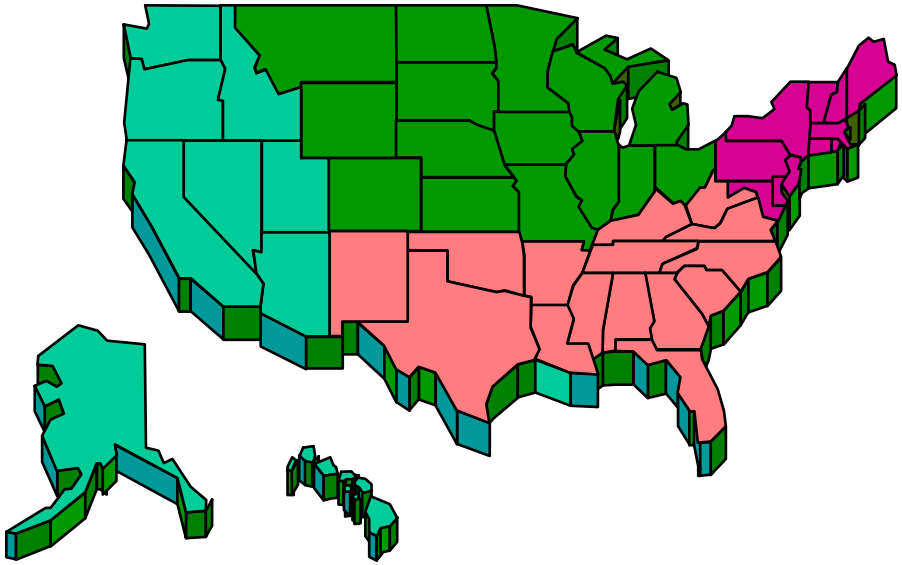
Figure 2. NAEP score equivalents of states' proficiency standards for reading, grade 4: 2005



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2005 Reading Assessment, and National Longitudinal School-Level State Assessment Score Database (NLSLSASD).

How is “National” Defined – It’s all in the Norm

- Inclusive Norms
  - Geographic
  - Demographic
  - Socioeconomic
  - Accommodated Students
- Empirical vs. “User” Norms
- Norm Year



TerraNova, Third Edition – Inclusive Norms

CTB McGraw-Hill

All Schools	Fall		Spring		Winter		All Seasons		National Percentage
	Unweighted Percentage	Weighted Percentage	Unweighted Percentage	Weighted Percentage	Unweighted Percentage	Weighted Percentage	Unweighted Percentage	Weighted Percentage	
School Type									
Public	77.52	90.47	83.29	90.47	87.01	90.80	81.71	90.48	90.47
Private	10.76	4.97	4.85	4.97	5.91	4.91	6.61	4.97	4.97
Catholic	11.72	4.56	11.86	4.56	7.08	4.29	11.68	4.55	4.56
Community Type									
Large Central City	13.58	14.84	14.75	16.25	13.11	16.72	14.36	15.86	15.94
Midsize Central City	15.77	17.04	11.64	13.20	17.32	14.68	13.01	14.35	14.67
Urban Fringe of Large City	21.14	28.65	19.35	27.92	24.07	26.99	20.01	28.10	28.07
Urban Fringe of Midsize City	12.11	10.92	12.31	12.50	14.29	12.03	12.31	12.03	11.94
Large Town	1.51	1.49	1.18	0.73	1.61	0.90	1.29	0.96	1.12
Small Town	10.24	6.38	14.69	8.04	8.96	7.12	13.22	7.54	7.54
Rural	25.18	20.22	25.31	20.47	20.63	21.56	25.14	20.43	20.36
Unclassified	0.47	0.46	0.77	0.88	.	.	0.66	0.74	0.36
Community Type(3-level)									
Urban	29.35	31.88	26.39	29.45	30.44	31.40	27.37	30.21	30.61
Suburban	34.75	41.06	32.84	41.15	39.97	39.93	33.6	41.09	41.13
Rural	35.43	26.60	40	28.52	29.59	28.67	38.37	27.97	27.9
Unclassified	0.47	0.46	0.77	0.88	.	.	0.66	0.74	0.36
Region									
Eastern	15.5	17.94	13.09	13.47	19.68	19.00	13.99	14.91	19.97
Mid_Continent	20.4	24.61	34.26	28.24	20.37	22.93	29.8	27.04	22.18
Southern	33.61	23.85	24.84	23.93	28.76	24.61	27.52	23.93	24.48
Western	30.5	33.60	27.81	34.36	31.19	33.46	28.69	34.12	33.37
Ethnicity									
African American	13.03	14.82	13.55	16.03	13.69	14.91	13.4	15.65	14.8
Asian	5.22	4.97	1.9	2.05	2.15	2.07	2.88	2.89	3.7
Hispanic	13.03	15.20	14.67	16.20	15.96	14.79	14.22	15.87	18.7
Other	68.72	65.02	69.88	65.73	68.2	68.23	69.49	65.59	62.8

What data do we get from an NRT?

Measure Growth	Rank	Mastery	Anticipated Achievement
▪ Growth Over Time ▪ Program Effectiveness	▪ National Ranking ▪ Local Ranking	▪ Critical Thinking ▪ Depth of Knowledge ▪ Broad range of achievement ▪ National Standards ▪ State Standards ▪ Common Core State Standards	▪ Are students achieving where they should be

Measuring Growth

CTB McGraw-Hill

Score Type	Definition	Purpose	Notes
SS	**Scale Score**	1. Measure Growth over time 2. Used as basis for all Norm Referenced scores (NCE, NP, GE)	1. Equal Interval 0-999 2. All students have one 3. SS can be averaged
NCE	**Norm Curve Equivalent**	1. Measure Growth over time 2. Compare performance between subtests on same test 3. Comparing growth between tests from different publishers	1. Equal Interval 1-99 2. All students have one 3. NCE can be averaged and converted into stanines or percentiles
Stanine	**National Stanine**	1. Measures growth 2. Less precise as SS or NCE	1. Equal interval 1-9 2. Convert to NCE for more precise growth

TerraNova, Third Edition – Group List Report

CTB McGraw-Hill

TerraNova™, Third Edition

Group List Report with *InView*™, Part I

CLASS: JONES

Grade: 6

Simulated Data

Purpose
This report summarizes obtained scores (TerraNova) and anticipated scores (*InView*) for a specified group. Part I provides a variety of norm-referenced scores for the group. Together with classroom assessments and classwork, this information can be used to identify potential strengths and needs in the content areas shown.

Number of students: 71
Number of students using accommodations: 2

Form/Level: G-16
Test Date: 04/24/07
QM: 31
School: WIDE VISTA
District: GREEN VALLEY

City/State: ANYTOWN, U.S.A.

Pg. 1

Mean Scale Score

Mean NCE

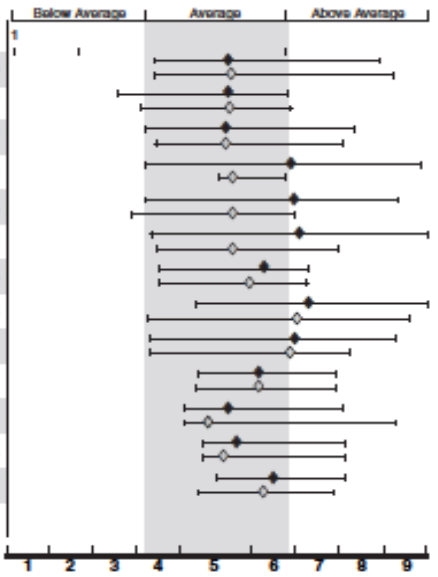
TERRANOVA 3

	No. of Students (using accomm*)	Mean Scale Score	Mean NCE	Mean ANT NCE	DIFF	Median NP	Low/High NP	Median ANT NP	Low/High ANT NP
Reading	71 (2)	669	58.4	62.6		59.3	30-93	60.2	32-95
Vocabulary	71 (2)	666	59.4	61.4		58.8	21-75	61.1	23-77
Reading Composite	71 (2)	668	60.2	62.3		59.0	31-91	60.0	33-87
Language	71 (2)	676	61.4	50.7	Above	76.0	33-97	66.2	48-76
Language Mechanics	71 (2)	687	69.8	54.7	Above	78.4	30-95	63.0	21-85
Language Composite	71 (2)	682	68.6	54.2	Above	80.0	31-99	65.1	32-92
Mathematics	70 (2)	676	65.2	60.2		71.0	33-85	66.5	33-85
Math Computation	70 (2)	668	68.2	63.2		86.0	38-99	80.8	28-98
Math Composite	70 (2)	672	68.6	61.2		79.0	29-96	73.7	29-91
Total Score**	70 (2)	674	62.5	56.1		69.0	40-91	69.0	40-91
Science	71 (2)	665	57.5	48.9	Above	56.0	36-87	49.0	36-94
Social Studies	70 (2)	665	58.1	51.6		59.0	41-88	50.5	40-88
Spelling	71 (2)	660	60.2	55.4		66.0	50-89	62.0	40-87
	—	—	—	—	—	—	—	—	—

*Based on locally reported data.
**Total Score consists of Reading, Language, and Mathematics.

Key: NCE – Normal Curve Equivalent
ANT – Anticipated
DIFF – Difference
NP – National Percentile
ACCOMM – Accommodations

National Percentile Scale



National Stanine Scale

Key: Low — High Obtained Score
Median
Low — High Anticipated Score

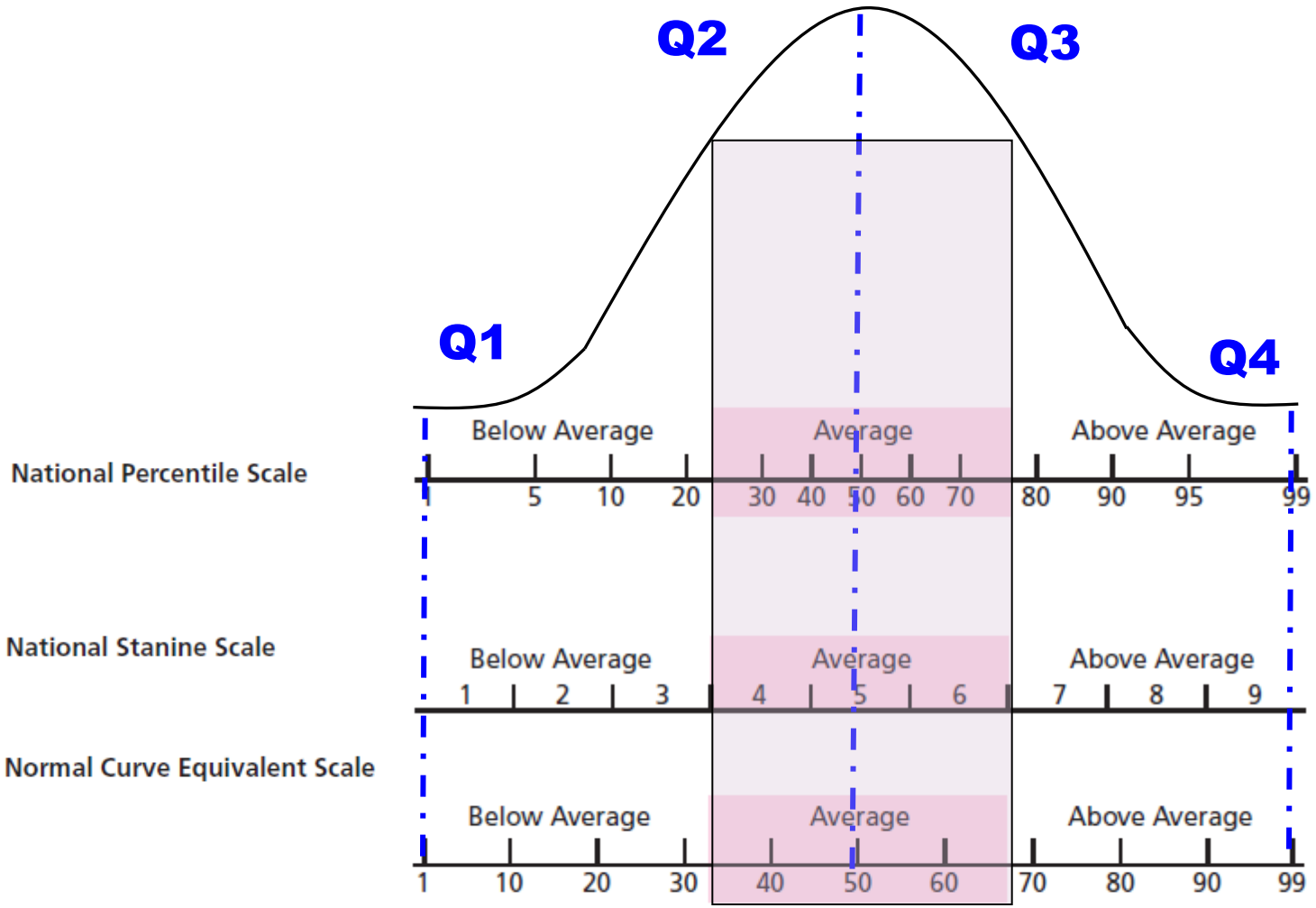
Class is doing better in Math than Reading

Ranking Students – A National & Local Comparison

CTB McGraw-Hill

Score Type	Definition	Purpose	Notes
NP	**National Percentile** **Local Percentile**	1. Ranks student performance against the national norm (nation). 2. Ranks students within a state	1. Scale is bell curve – not equal interval 2. Cannot compare NP across subject areas 3. It is not % correct
NP of the MNCE	**National Percentile of the Mean Norm Curve Equivalent**	▪ Shows where the average student is ranked	
MDNP	**Median National Percentile**	▪ Shows where the middle student is	
Quartile	**National Quartile** **Local Quartile**	▪ Shows where students are ranked vs. national and local distribution of 25% in each Quartile	1. Q1 = NP 1-25 2. Q2 = NP 26-50 3. Q3 = NP 51-75 4. Q4 = NP 76-99

Comparing the Scales



Source: Page 292 of Teacher's Guide

Alaska Schools Distribution

CTB McGraw-Hill

Alaska Student Assessments
TerraNova Assessment (TN3)
Summary Report - Grade 5

Print Date: 2/22/2012

	Reading									Language Arts									Mathematics									Total Score
		Each Quartile									Each Quartile									Each Quartile								
		Highest Quartile		Third Quartile		Second Quartile		Lowest Quartile			Highest Quartile		Third Quartile		Second Quartile		Lowest Quartile			Highest Quartile		Third Quartile		Second Quartile		Lowest Quartile		
Year	Number Tested	N	%	N	%	N	%	N	%	Number Tested	N	%	N	%	N	%	N	%	Number Tested	N	%	N	%	N	%	N	%	Number Tested
2009	3492	872	25.0	857	24.5	830	23.8	933	26.7	3491	876	25.1	969	27.8	849	24.3	797	22.8	3498	793	22.7	983	28.1	861	24.6	861	24.6	3481
2010	3803	892	23.5	922	24.2	949	25.0	1040	27.3	3803	922	24.2	1062	27.9	948	24.9	871	22.9	3802	933	24.5	1007	26.5	911	24.0	951	25.0	3783
2011	3586	851	23.7	862	24.0	905	25.2	968	27.0	3583	826	23.1	993	27.7	953	26.6	811	22.6	3587	803	22.4	1011	28.2	929	25.9	844	23.5	3563

How are Data Related?

CTB McGraw-Hill

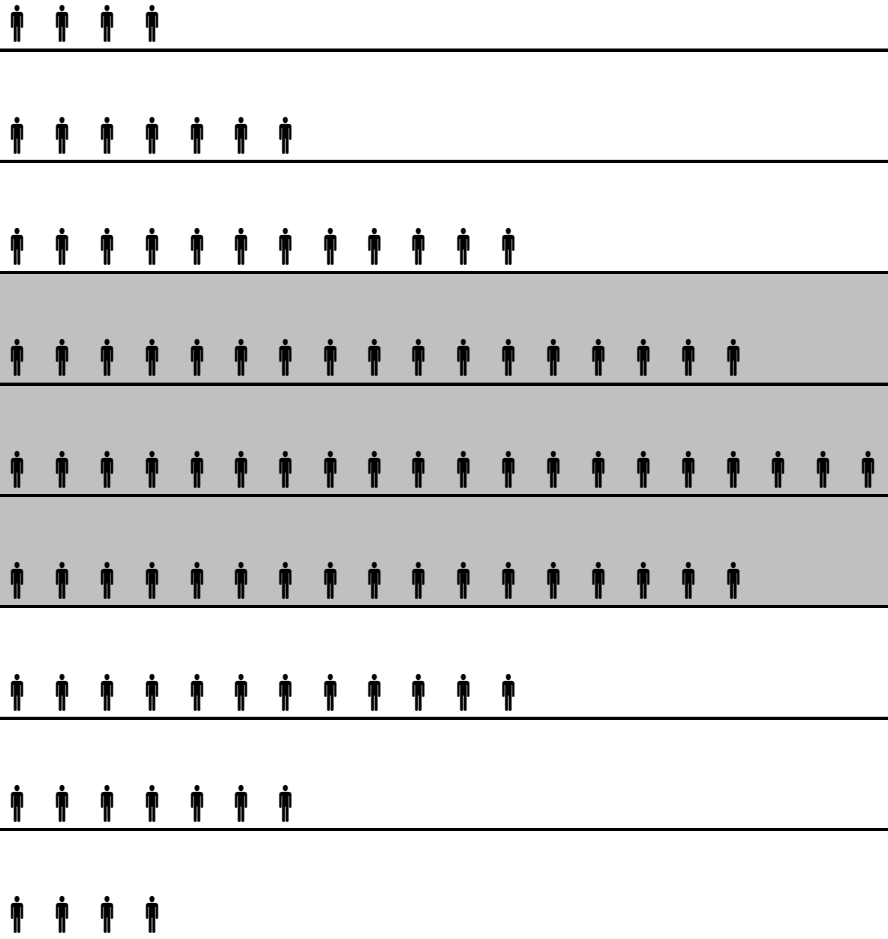
Stanine	Description	National Percentile Rank Range	Percent of students in the nation.	
9	Highest level	96 - 99	4%	
8	High level	89 - 95	7%	
7	Well above average	77 - 88	12%	
6	Slightly above average	60 - 76	17%	
5	Average	40 - 59	20%	
4	Slightly below average	23 - 39	17%	
3	Well below average	11 - 22	12%	
2	Low	4 - 10	7%	
1	Very Low	1 - 3	4%	

Q4

Q3

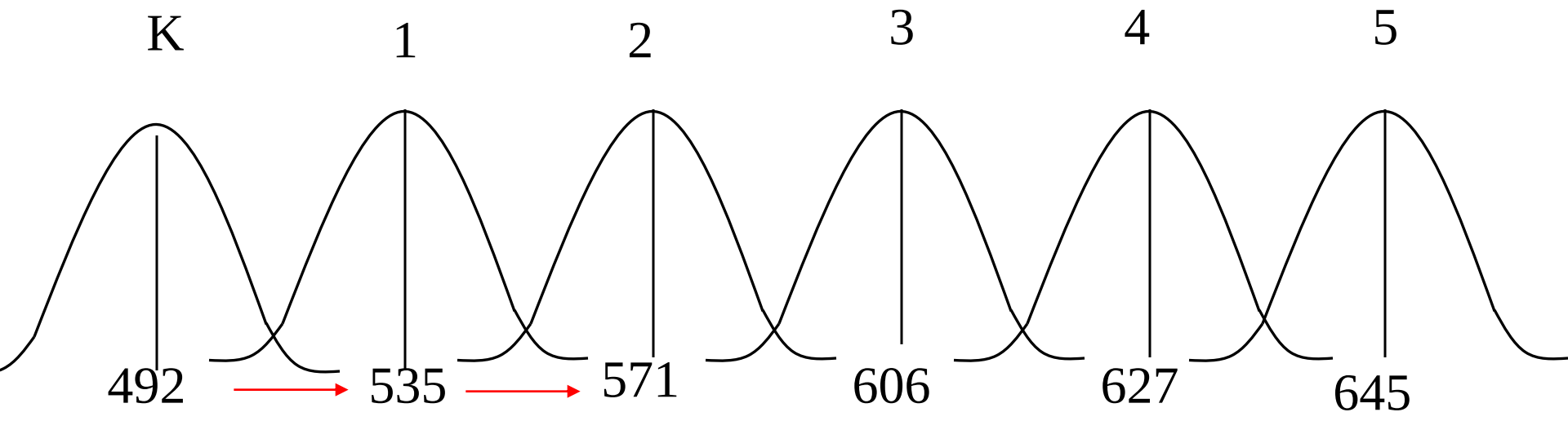
Q2

Q1



What Does Average Growth Look Like?

- If a student is in the 50th National Percentile each year
  - he is still growing!



Tracking Growth

CTB McGraw-Hill

Bold are TerraNova 3rd edition Scales Scores - National Average

Fill in your school's Mean/Average Scale Score in the [ ]

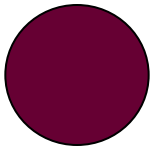
GRADE	Reading								
8							8	**676**	[ ]
7						7	**670**	[ ]	
6					6	**662**	[ ]		
5				5	**657**	[ ]			
4			4	**642**	[ ]				
3		3	**629**	[ ]					
2	2	**606**	[ ]						
1	**571**	[ ]							

GRADE	Math								
8							8	**689**	[ ]
7						7	**676**	[ ]	
6					6	**669**	[ ]		
5				5	**652**	[ ]			
4			4	**637**	[ ]				
3		3	**613**	[ ]					
2	2	**571**	[ ]						
1	**531**	[ ]							

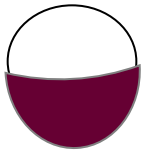
Mastery Scores – OPI

An Objective Performance Index (OPI) is an estimate of the number of items the student could be expected to answer correctly if he/she had taken 100 items measuring that objective.

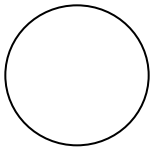
- **Scores based on content knowledge of specific "sub-skills"**
- **Diagnoses strengths/weaknesses**



High Mastery >75



Moderate Mastery = 50 - 75



Low Mastery <49

TerraNova, Third Edition - Individual Profile Report

CTB McGraw-Hill

TerraNova™, Third Edition

TERRANOVA 3

COMPLETE BATTERY

Individual Profile with *InView™*, Part I

KEN JONES

Grade 4

Simulated Data

Purpose
This report presents information about this student's performance on the *TerraNova* and *InView* assessments. Page 1 describes achievement in terms of performance on the objectives. Together with classroom assessments and classwork, this information can be used to identify potential strengths and needs in the content areas shown.

Birthdate: 02/08/98
Special Codes:
ABCDEFGHIJKLMNOPQRSTUVWXYZ
3 59 732 11 1
Form/Level: G-14

Test Date: 04/15/07 Scoring: PATTERN (IRT)
QM: 31 Norms Date: 2007

Class: JONES
School: WINFIELD
District: GREEN VALLEY

City/State: ANYTOWN, U.S.A.

Performance on Objectives

Obj. No.	Objective Title	Student	Nat'l OPI	Diff	Moderate Mastery Range
	Reading				
02	Basic Understanding	91	79	12	48-70
03	Analyze Text	92	84	8	52-75
04	Evaluate/Extend Meaning	65	66	-1	50-70
05	Identify Rdg Strategies	70	74	-4	45-73
	Language				
07	Sentence Structure	63	68	-5	45-70
08	Writing Strategies	59	74	-15	50-75
09	Editing Skills	78	63	15	55-75
	Mathematics				
10	Number & Num. Relations	71	69	2	47-77
11	Computation & Estimation	83	72	11	45-75
2. 13	Measurement	66	86	-20	45-60
14	Geometry & Spatial Sense	71	72	-1	50-78
1. 15	Data, Stats. & Prob.	61	83	-22	52-78
16	Patterns, Funcs, Algebra	77	88	-11	44-73
3. 17	Prob Solving & Reasoning	71	74	-3	52-75
18	Communication	69	68	1	43-73
	Science				
19	Science Inquiry	47	74	-27	50-75
20	Physical Science	49	69	-20	52-77
21	Life Science	46	83	-37	45-78
22	Earth & Space Science	52	84	-32	48-73
23	Science & Technology	48	78	-30	52-69
24	Personal & Social Persp.	52	56	-4	50-73
	Social Studies				
26	Geographic Perspectives	79	91	-12	48-70
27	Historical & Cultural	84	92	-8	52-75
28	Civics & Government	66	65	1	50-70
29	Economic Perspectives	74	70	4	45-73

Objectives Performance Index (OPI)* 0 25 50 75 100

Rank objectives low to high

*OPI is an estimate of the number of items that a student could be expected to answer correctly if there had been 100 items for that objective.

Key
Moderate Mastery Range
Low Mastery
Moderate Mastery

Mastery – Critical Thinking

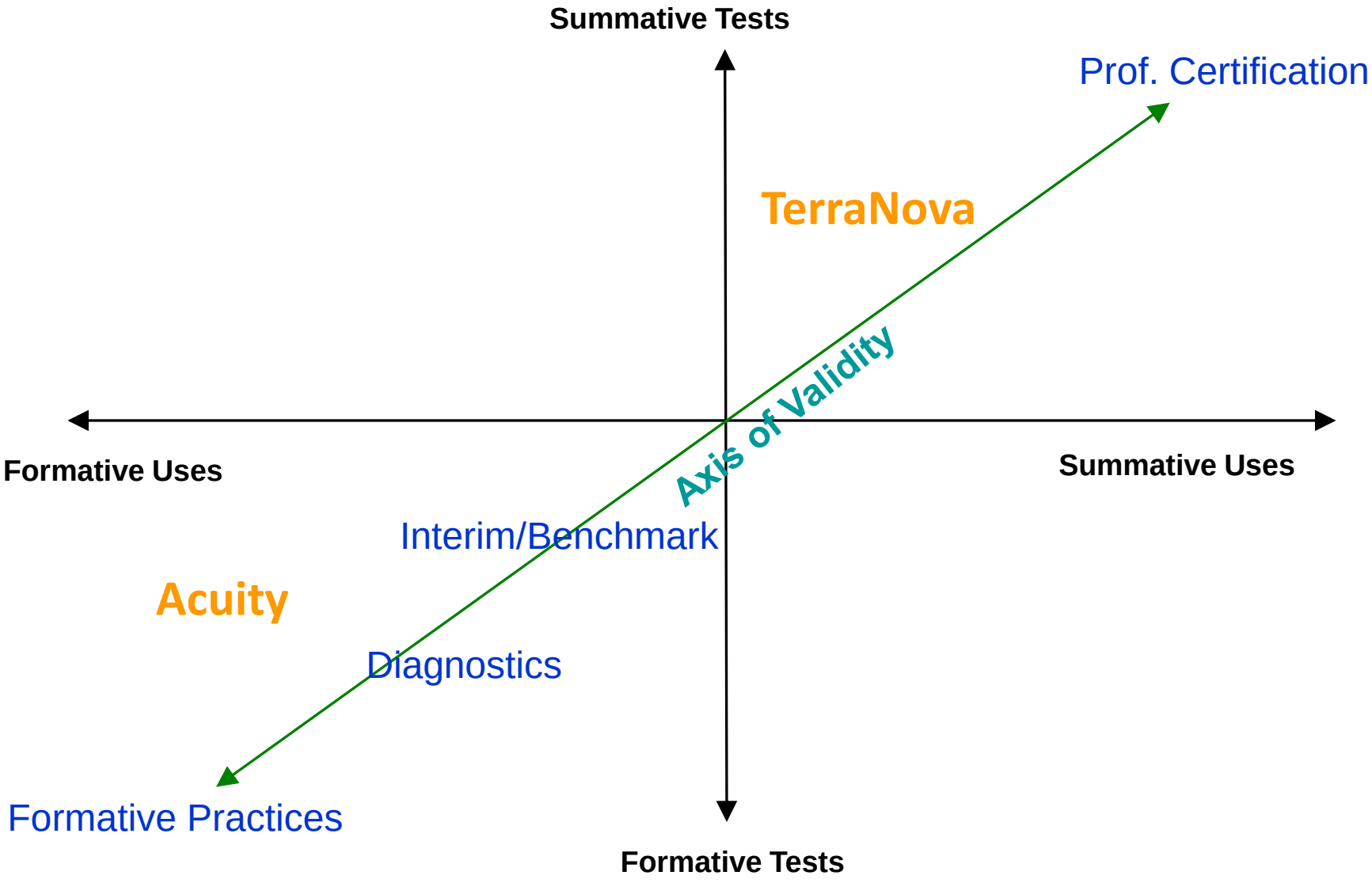
- *TerraNova*, Third Edition Teacher's Guide, Page 199.
- Items Illustrating Thinking Skills Pages 200-211.

Thinking Skill	Thinking Skill Subcategories
Gather Information Acquire relevant data	**Observe**—obtain information through observation **Recall**—retrieve information from memory or text **Question**—seek new information by questioning
Organize Information Arrange data for more effective use	**Compare**—note similarities and differences **Classify**—group and label based on common attributes **Order**—sequence entities according to a given criterion **Represent**—change form, but not substance, of information
Analyze Information Clarify existing information by examining and relating its parts	**Identify Attributes and Components**—determine characteristics or parts of something **Determine Accuracy and Adequacy**—examine to discover possible errors, biases, omissions, ambiguities, or unwarranted claims **Recognize Relationships and Patterns**—identify patterns and the way elements are related **Identify Central Element**—determine essence or main idea
Generate Ideas Extend or expand knowledge	**Infer**—reason beyond available information to fill in gaps **Predict**—anticipate or forecast future events **Restructure**—change existing structures to incorporate new information and insights
Synthesize Elements Combine information or connect ideas to create new understanding, product, or solution	**Summarize**—abstract essential information concisely **Integrate**—connect and combine elements into a new whole
Evaluate Outcomes Assess the reasonableness and quality of ideas	**Establish Criteria**—set standards for making judgments **Verify**—judge accuracy, adequacy, and value of outcomes

Mastery - Depth of Knowledge

- TerraNova, Third Edition Teacher's Guide Page 237
- TerraNova, Third Edition Teacher's Guide: Pages 238-255

DoK Level	DoK Label	DoK Description	
		Reading and Language	Mathematics
1	Recognizing and Recalling	**Level 1** reading and writing tasks require students to recognize or recall basic facts, terms, or definitions of grade-level words and text.	**Level 1** tasks require students to recognize or recall basic facts, terms, concepts, or definitions of the content and processes of mathematics.
2	Using Fundamental Concepts and Procedures	**Level 2** reading and writing tasks require students to use basic facts, definitions, graphics, skills, or concepts that are grade-appropriate when reading or communicating.	**Level 2** tasks require students to apply basic facts, terms, concepts, or definitions of the content and processes of mathematics.
3	Concluding and Explaining	**Level 3** reading tasks require students to use stated and implied information and text elements to draw conclusions about a grade-level text. Students explain and convey ideas effectively. Level 3 writing tasks require students to use a writing process and apply understanding of elements of writing, such as purpose, form, focus, organization, content, and audience.	**Level 3** tasks require students to demonstrate an understanding of complex ideas, to draw conclusions based on understanding, and to communicate ideas and conclusions effectively.
4	Evaluating, Extending, and Making Connections	**Level 4** reading tasks require students to evaluate, interpret, or create grade-level text. Students make connections among texts, experiences, and issues. Level 4 writing tasks are complex and require students to demonstrate a mastery of process, mode, content, organizational strategy, and style, as well as an advanced sense of audience and voice.	**Level 4** tasks require students to synthesize skills and techniques from various concepts of mathematics to solve multifaceted problems, and to justify conclusions using mathematical definitions, properties, and principles.
5	Integrative Thinking and Performance	**Level 5** reading tasks require students to integrate processes, skills, and concepts and to apply and synthesize understanding when completing extended tasks. Students may create an original and polished product, working independently or collaboratively and across disciplines. Students demonstrate breadth, depth, and purposefulness in their thinking and performance.	**Level 5** tasks require students to demonstrate the ability to integrate the knowledge, processes, and skills of mathematics in abstract or real-world problem situations. Tasks at this level require students to work fluently and confidently with a diverse range of mathematical concepts, and to demonstrate breadth, depth, and sophistication in both thinking and performance.


Summative Tests
Prof. Certification
TerraNova
Axis of Validity
Formative Uses
Summative Uses
Interim/Benchmark
Acuity
Diagnostics
Formative Practices
Formative Tests

Questions?